



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,207	06/27/2001	John Michael Cotte	YOR920010091US1(14299)	5007
7590 07/28/2004			EXAMINER	
Steven Fischman, Scully, Scott, Murphy & Presser 400 Garden City Plaza Garden City, NY 11530			PERKINS, PAMELA E	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,207

Applicant(s)

COTTE ET AL.

OK

Examiner

Pamela E Perkins

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the filing of the Appeal Brief on 18 May 2004.

Claims 1-20 are pending.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Mullee et al. (6,500,605).

Mullee et al. disclose a method of cleaning a precision surface where a substrate is cleaned, after reactive ion etching a surface of the substrate (col. 2, lines 1-5, 24-26, 47 & 48), using a supercritical carbon dioxide surfactant and a co-solvent, a fluoride (abstract; col. 9, lines 27-37 & 53-58), at a temperature of 31 to 100°C (col. 7, lines 25-43) and a pressure of 1070 psi to 6000 psi (col. 8, lines 42-59) to remove reactive ion etched residue from the surface of the substrate (col. 4, line 30-38). Mullee et al. further

disclose the precision surface having vias, cavities, trenches or channels (col. 2, lines 1-5, 24-26, 47 & 48).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mullee et al. in view of Alm *Formulation Techniques Using Triflic Acid Salts*.

Mullee et al. disclose the subject matter claimed above except the fluoride selected from a group comprising fluorosulfonic acid, perfluorosulfonic acid, pyridine:hydrogen fluoride, amine:hydrogen fluoride, alklamine:hydrogen fluoride, quaternary amine fluoride, tetraalkylammonium fluoride, perfluoroalkylammonium fluoride, trifluoromethylsulfonyl fluoride, perfluorooctylsulfonyl fluoride, arylsulfonyl fluoride, benzene diazonium fluoride and benzene diazonium tetrafluoroborate.

Alm disclose a method of fluoride compounds where fluorosulfonic acid, perfluorosulfonic acid, pyridine:hydrogen fluoride, amine:hydrogen fluoride, alklamine:hydrogen fluoride, quaternary amine fluoride, tetraalkylammonium fluoride, perfluoroalkylammonium fluoride, trifluoromethylsulfonyl fluoride, perfluorooctylsulfonyl fluoride, arylsulfonyl fluoride, benzene diazonium fluoride and benzene diazonium tetrafluoroborate are used in coating processes (page 1; table 1-2).

Since Mullee et al. and Alm are both from the same field of endeavor, a method of cleaning, the purpose disclosed by Alm would have been recognized in the pertinent art of Mullee et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mullee et al. by selecting a fluoride from a group comprising fluorosulfonic acid, perfluorosulfonic acid, pyridine:hydrogen fluoride, amine:hydrogen fluoride, alklamine:hydrogen fluoride, quaternary amine fluoride, tetraalkylammonium fluoride, perfluoroalkylammonium fluoride, trifluoromethylsulfonyl fluoride, perfluorooctylsulfonyl fluoride, arylsulfonyl fluoride, benzene diazonium fluoride and benzene diazonium tetrafluoroborate as taught by Alm to act as a catalyst in reactions in coating processes (page 1).

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mullee et al. in view of Hirayama et al. (6,316,057).

Mullee et al. disclose the subject matter claimed above except the substrate comprising a metal, the metal selected from a group consisting of aluminum, silicon, tungsten, titanium, tantalum, platinum, palladium, iridium, chromium, copper and silver and a polymer selected from a group consisting of polyimides and polyamides or insulators.

Hirayama et al. disclose a method of making a semiconductor device where a substrate is coated with a material selected from a group comprising aluminum, silicon, tungsten, titanium, tantalum, platinum, palladium, iridium, chromium, copper and silver and a polymer selected from a group consisting of polyimides and polyamides or insulators (col. 1, lines 62-67; col. 3, lines 24-60).

Since Mullee et al. and Hirayama et al. are both from the same field of endeavor, a method of cleaning, the purpose disclosed by Hirayama et al. would have been recognized in the pertinent art of Mullee et al. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention made to modify Mullee et al. by the substrate comprising a metal, the metal selected from aluminum, silicon, tungsten, titanium, tantalum, platinum, palladium, iridium, chromium, copper and silver and a polymer selected from a group consisting of polyimides and polyamides or insulators as taught by Hirayama et al. to form well-adhered thin layers on the substrate (col. 1, lines 62-67).

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chen et al. (5,904,570) disclose a method of cleaning a precision surface where a substrate is cleaned, after etching a surface of the substrate, using a liquid surfactant and a co-solvent, a fluoride to remove residue from the surface of the substrate, wherein the precision surface having vias, cavities, trenches or channels. Ho (6,387,859) discloses a method of cleaning a precision surface where a substrate is cleaned, after reactive ion etching a surface of the substrate, using a carbon dioxide

Art Unit: 2822


surfactant and a co-solvent, a fluoride to remove reactive ion etched residue from the surface of the substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pamela E Perkins whose telephone number is (571) 272-1840. The examiner can normally be reached on Monday thru Friday, 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PEP


AMIR ZARABIAN
SUPPLEMENTARY PATENT EXAMINER
TECHNOLOGY CENTER 2800